THE INFLUENCE OF INTEGRATION AND PLAN MATURITY OF INFORMATION SYSTEM TOWARD INFORMATION SYSTEM PERFORMANCE IN MANUFACTURING INDUSTRIES

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ABSTRACT

This study examines the phenomenon identified as the existence of a gap between expectations and realities on Management Information System that is influencing the performances of an organization information systems of the manufacturing industry in Indonesia. The objective of this study is to explore the influence of Information Integration and the Maturity of Information System Planning, both directly and indirectly toward a successful Information System. The influences are analyzed with the Path Analysis, which is relevant with the structure of variables that have been rebuilt from the manifest variables. The method applied in this research is the explanatory survey. The primary tool of data gathering used to gather primary data is questionnaires. The secondary data are collected from documents related to the research and the result of situational research.

The result of this research shows that the three hypotheses are accepted and they describe that the conceptual research paradigm to be corresponding with the empirical fact, Integration and the Maturity Planning of Information System significantly influence an information system performance on the manufacturing industry.

Key words: Integration, the Maturity Planning, performances, Information Systems

INTRODUCTION

An efficient and effective corporate management needs an integrated information system between one system and another related system, as if information flow among systems. The integration of information system in information system integration concept based on the concept of information sub-system hierarchical integration, information sub-system horizontal integration and infrastructures sub-system cross-function integration connecting one system to another system having the purpose to produce all information briefly as the basis in making the policy fast and accurate for the management (Scott, George M., 1995).

A reliable and accurate information system should be planned. Practitioners and surveyors consistently consider information system planning as a very important topic. The existing recognition on potential strategy of information system and the likely increase of competitive advantage have caused increase of attention to information system planning. (Sabberwal, 1999).

Information system planning should be planned maturely to be applicable according to corporation's need and development.

Mature information system planning has positive effects on information system performance, this indicates that mature information system planning is based on more synergic integration between information technology and business of knowledge and involvement of system users. The maturity of information system planning is influenced by the participation of Top Management, involvement of users or employees, information system design (Lind, Zmud, 1991).

Information system performance influenced by maturity in information system planning is based on the participation of top management related to decision of solution on the problem of information system. The participation of top management in information system hierarchically enables more than one problem solutions, particularly related to among others competition activity, strategy of corporation's product quality increase, additional investment in advertisement, and cost efficiency (Mc Leod, Raymond, 2003).

Formulation of Problem

Based on the background of study, the identification of study is as follows:

1. How much do information integration affect the performance of corporation's information system?
2. How much do the maturity of information system planning affect corporate information system performance?
3. How much do information integration and information system planning maturity affect corporation's performance of information system?

Purpose of Study

The purpose of study is to find out the relation between the variable of information system integration and information system planning maturity and the variable of information system performance.

Objectives of Study

The objectives of this study are:

1. To produce understanding of application and implementation of information Integration in manufacturing industry in Banten Province.
2. To produce understanding of application and implementation of information system planning Maturity in manufacturing industry in Banten Province.
3. To get the answer concerning the relation of information Integration and information system planning maturity and the information system performance in manufacturing industry in Banten Province.

Literature Review

Information System Integration

Sub-system is a collection of semi-separated systems that are integrated, so that they are respectively related to each other. Integration is particularly conducted by passing data between systems. Computer program and file are designed to handle data flow between systems and manual procedure can be used to perform integration (George M.Scott 1995:101).

Information System Planning Maturity

More mature information system planning will increase the focusing of view between information system manager and line manager based on the type of system and enables more synergic integration between information technology and knowledge business. The maturity of information system planning is influenced by Top Management's participation, involvement of users or employees, information system design (Lind, Zmud, 1991).

Information System Performance

Information system performance is performance based on information system Integration, information system planning maturity, and technology capability. Wade, Recardo (2001) presents that: it will be difficult for organizations having no Management Information System to conduct control on the information system performance, Wade, Recardo (2001 : 75), namely:

" The core compentency of technology and system integrators must be technology. Our experience suggest that implementing a new system affects a large number of other aspects of the organization, as well. All aspects of company must be aligned to support the overall success of the sytems solution. "

METHODOLOGY

Method of Study Used

The study on the objects is conducted in industrial companies distributed in Indonesia, particularly Banten Province (covering: Tangerang, Pandeglang, Lebak, Serang, Banten Cities) in total of 558. The samples from this study are in total of 121 and were taken by using simple random technique.

Research Model

The extent of effect of each variable partially is shown in Figure 1.

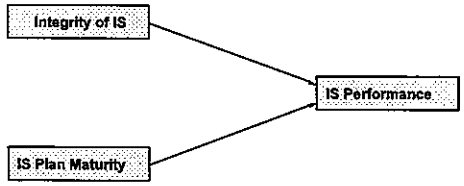

Figure 1
Effects of information system integration variable and information system planning maturity on information system performance

Hypothesis 1

H0 : There are not effects of information system integration on corporate information system performance.
H1 : There are positive effects of information system integration on corporate information system performance.

Hypothesis 2

H0 : There are not effects of information system planning maturity on information system performance.
H1 : There are positive effects of information system planning maturity on information system performance.

Hypothesis 3

H0 : There are not effects of integration and maturity of information system planning on information system performance.
H1 : There are positive effects of integration and maturity of information system planning on information system performance.

Operational Variables

The operational variables are :

- **Information System Integration Variable**, referring to information sub-system hierarchy integration in the form of transaction data input to managerial level system in the form of department transaction system data flow directing to higher managerial information system that moves automatically between sections according to hierarchy. Information sub-system horizontal integration related to data passes various information

systems and moves at the same time with product process and from one department to other department, occurring regularly from one system to other system. Cross integration of information system function is information involving various fields of function and occurring continuously and conducted by a number of different mechanism based on procedure (1987), Vijayasarath & Sabherwal (1994), McLeod (2003).

- **Information System Planning Maturity Variable,** is how far the participation of top management in Planning, development, Participation in system implementation related to planning of macro information system design that is decentralized, centralized and dispersed and planning of micro information system design related to specialty according to user's need, specialty according to operator's need, and specialty related to operational implementation need. Gallier (1987), Lederer & Mendelow (1989), Raghunathan & King (1988).

- **Information System Performance Variable,** is the measuring of information system performance covering financial perspective, technology and innovation perspective, organizational perspective, customer perspective, operational perspective. (Wade, Recardo. 2001).

Finding

Information System Integration, Information System Performance

Hypothesis:

H0 : There are not effects of information system integration on corporate information system performance.

H1 : There are positive effects of information system integration on corporate information system performance.

From the result of data processing is obtained the value sig. .000 (from table 2: Anova table) of the information system integration variable on information system performance. The value is smaller than 0.05, with reliability level 95%, the H0 is reject, so it can be concluded that the information system integration variable partially affects significantly on the information system performance in industry in Banten Province.

Table 1 :Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.619(a)	.383	.378	.39733	.383	73.915	1	119	.000

a Predictors: (Constant), ISINTEGR

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Table 2 : ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.669	1	11.669	73.915	.000(a)
	Residual	18.786	119	.158		
	Total	30.455	120			

a Predictors: (Constant), ISINTEGR
b Dependent Variable: ISPERF

The information system integration on the information system performance indicates an effect at 38.3% (from table 1 : Model Summary) and the remaining at 61.7%, which is assumed to be the effect of factors outside information system integration such as: effect caused by specific functional specifications in departments that do not need information system integration, effect of users who do not require or need non-integrated information system, factor of Human Resource's capacity in integrating the system and effect of availability of hardware to use integrated information system.

The result of statistical analysis shows that information system integration has positive effects on information system performance, this indicates that information sub-system hierarchical integration, namely a system starting from transaction level gives data input to the system at managerial level, or by the opposite direction. Hierarchical integration is information integration shortened based on hierarchical line in one command line according to functional fields.

Transaction system hierarchical integration in departments flows from the transaction recording performer directing to a higher managerial information system that occurs automatically and spreads in various sectors in organization. Integration by horizontal information sub-system is a command chain integration, namely data integrated to pass various information system of various departments together with the movement of products from one department to other department. Cross integration of information sub-system function involves various functional fields occurring continuously and conducted by a number of different mechanisms based on standard procedure, as the opinion of Scott M.George (1995), if the data between systems access the same data elements from the same source or if the output of a system will be the input for other system like information from one system that processes a transaction as the input for managerial information system, it may be said that the systems "interact" and the interaction between interrelated systems is called integrated system.

The significant effect of information system integration on information system performance is the integration of information flow in a company, particularly in the reporting process, can be conducted within a relatively short time, relevantly and correctly at appropriate time, and information system integration can

significantly encourages the manager to distribute information produced by his department that regularly flows to other departments requiring the information and can be used wider to help achieve the organization's performance.

Maturity of Information System Planning, Information System Performance

Hypothesis :

H0 : There are not effects of information system planning maturity on information system performance.
H1 : There are positive effects of information system planning maturity on information system performance.

From the result of data processing is obtained the value sig. 0.000 (from table 4 : Anova table) of the maturity variable of information system planning on the information system performance. The value is smaller than 0.05 with reliability level 95%, the H0 is reject, so it can be concluded that the maturity variable of information system planning partially affects significantly on the information system performance in industry in Banten Province.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.610(a)	.373	.367	.40073	.373	70.655	1	119	.000

a Predictors: (Constant), MATURITY

Table 4 : ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.346	1	11.346	70.655	.000(a)
	Residual	19.109	119	.161		
	Total	30.455	120			

a Predictors: (Constant), MATURITY
b Dependent Variable: ISPERF

The information system planning on information system performance indicates the effect at 37.3% (table 3 : Model Summary) and the remaining at 62.7% is assumed to be the effect of factors outside the information system planning, among others: the effect of implementation of planning that is not conducted as the specified planning, the effect of changes in planning adjusted to

technology changes and company's development, the effect of activity changes of company's operational divisions, so that the specified planning becomes partial.

Information System Integration, Maturity of information system planning, information system performance

Hypothesis:

H0 : There are not effects of integration and maturity of information system planning on information system performance.
H1 : There are positive effects of integration and maturity of information system planning on information system performance.

From the result of data processing is obtained the value sig. 0.000 (from table 6 : Anova table) of the maturity variable of information system planning on the information system performance. The value is smaller than 0.05 with reliability level 95%, the H0 is reject, so it can be concluded that the information system integration variable and the system planning maturity collectively or simultaneously affect significantly on the information system performance in industry in Banten Province.

Table 5 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.729(a)	.532	.524	.34764	.532	67.000	2	118	.000

a Predictors: (Constant), MATURITY, INTEGRIT

Table 6 : ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.194	2	8.097	67.000	.000(a)
	Residual	14.261	118	.121		
	Total	30.455	120			

a Predictors: (Constant), MATURITY, INTEGRIT
b Dependent Variable: ISPERF

Table 7 : Coefficients(a)

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